

REMARKS

This communication is a full and timely response to the aforementioned non-final Office Action dated January 2, 2008. By this communication, claims 10-18 are amended. Thus, claims 10-18 are pending in the application. Claim 10 is independent.

Reconsideration of the application and withdrawal of the rejections of the claims are respectfully requested in view of the foregoing amendments and the following remarks.

I. Amendments to the Specification and Abstract

Minor editorial revisions have been made to the specification and abstract to correct informalities and to re-label headings of the specification in accordance with 37 C.F.R. 1.77(b). Approval and entry of the amendments to the specification and abstract are respectfully requested.

A clean version of the substitute abstract is submitted herewith.

II. Claim Objections

Claims 10-18 were objected to because of the identified informalities. In particular, the Office objected to the use of the phrase "management of user of the script file is open but management of user of the firm is restricted" in regard to user management.

In response to the objection, claim 10 has been amended to recite that the file management system allows a user to handle the script file without exposing the firmware. This recited feature is supported throughout the specification and drawings. For example, see the paragraph spanning pages 18 and 19 of the specification (corresponding to paragraph [0049] of U.S. Patent Application Publication No. 2006/0190529 A1).

Accordingly, in view of the amendments to claim 10, Applicants respectfully request that the objection to claims 10-18 be withdrawn.

III. Rejections Under 35 U.S.C. § 102

Claims 10, 12, 15, 17 and 18 were rejected under 35 U.S.C. § 102(b) as being anticipated by Mahajan (U.S. Patent No. 5,404,528).

Without acquiescing to this rejection, independent claim 10 has been amended to emphasize distinctions between the claimed invention and the applied references. Applicants respectfully submit that the claimed invention is patentable for the following reasons.

Device servers for connecting a device that has only a serial port to a computer network have been conventionally developed. For example, the vast majority of console ports that are provided on network appliances for making settings are serial ports. Serial ports have conventionally been connected via a device server to a network, such as the Internet, and a protocol is converted by the device server so that the console part of the network appliance can be accessed via the network and a parameter file can be set. Although a device server has conventionally been designed to convert a protocol and transfer data for a particular peripheral device connected to the device server, the interface controller chip of the device server will differ depending on the type of protocol to be converted, and therefore, it has been conventionally necessary to use different device servers for different peripheral devices. The same drawback occurs for device servers connected to peripheral devices that have parallel, analog and digital interface ports, for example.

Accordingly, it has been conventionally necessary to develop independent device servers for each peripheral device connectable to such device servers due to the need to convert a protocol used by the peripheral device. Even if it is possible to access a peripheral device from a computer terminal via a network, unless an application can display and decode the data obtained from the peripheral device is developed, it will not be possible to output or use the target device and communicate the data across the network. Even if it is possible to install functions for handling data according to many different protocols, it will not be possible to install all of the functions for determining processing and/or operations between interfaces of various peripheral devices or to install all the control logic required to do so in advance for such peripheral devices.

Exemplary embodiments of the present invention provide a multipurpose semiconductor integrated circuit device that makes it possible to connect a variety of appliances and devices (e.g., peripheral devices) to a network easily and at low cost, and to make it easy to view the output of a variety of appliances using a browser, for example. In addition, the exemplary embodiments provide a multipurpose semiconductor integrated circuit device that improves user programmability of a chip level or integrated circuit device level, and allows a user to change application programs of the chip.

The exemplary multipurpose semiconductor integrated circuit is configured to control access to a flash memory that includes a file storage region for storing a script file and firmware in a non-volatile manner. While flash memory and a ROM are non-volatile, flash memory is rewritable. The script file enables users to define, using script language, processes relating to data inputted and/or outputted through a plurality of types of input/output interfaces for various appliances and/or peripheral devices. Thus, a user can generate, update and/or modify script files to be compatible with various applications used by the multiple semiconductor integrated circuit and various peripheral devices connectable to the interfaces of the multiple semiconductor integrated circuit, without being required to update firmware, which is conventionally required. The exemplary embodiments provide that the script file and firmware, which includes program modules for functions of an application layer, are stored at the same level, i.e., in the file storage region of the flash memory. The exemplary multipurpose semiconductor integrated circuit allows users to modify, update or rewrite software applications on the same level as the firmware, but without exposing the firmware. In particular, a file management system comprised in the exemplary multipurpose semiconductor integrated circuit makes it possible for a user to access the file storage region of the flash memory to easily manage script files relating to data inputted and/or outputted through a plurality of types of input/output interfaces, without exposing the firmware to the user.

Claim 10 recites various features of the above-described exemplary embodiment. In particular, claim 10 recites a multipurpose semiconductor integrated circuit device comprising a plurality of types of input/output interfaces.

The multipurpose semiconductor integrated circuit device of claim 10 comprises a flash memory including a file storage region for storing a script file and firmware in a non-volatile manner. Claim 10 recites that the firmware includes program modules for functioning of an application layer, and the script file defines, using script language, processes relating to data inputted and/or outputted through the plurality of types of input/output interfaces with the program modules.

The multipurpose semiconductor integrated circuit device of claim 10 also comprises an interpreter capable of executing the script file.

In addition, the multipurpose semiconductor integrated circuit device of claim 10 comprises a file management system that admits accessing the file storage region of the flash memory through at least one of the plurality of types of input/output interfaces. Claim 10 recites that the file management system is configured to allow a user to handle the script file without exposing the firmware stored in the file storage region of the flash memory.

Mahajan discloses a personal computer 100 that includes a scripting system for scripting functionality in an application program. As shown in Figure 2, Mahajan discloses that personal computer 100 includes a mass storage memory 120, a ROM 112 and a RAM 114. The personal computer 100 also includes interfaces 115, 121, 122 connected to devices external to the personal computer 100. Mass storage memory 120, which is a fixed disk or a floppy disk drive, includes stored program instruction sequences for exporting application program functionality to a script, and stored program instruction sequences for various application programs (see Column 3, lines 5-24). Mahajan discloses that application programs 10, 11 and 12 are stored in the mass storage memory 120 (see Column 4, lines 10-15, and Figure 3). Mahajan discloses that application programs that make scripting available initiate a script interpreter that attaches a script to be executed when a script event occurs (see Column 4, lines 33-66).

Accordingly, Mahajan discloses that, on a software application level, rewriting of a software application is made possible by a user via a script. On the contrary, Mahajan does not disclose or suggest that rewriting of software applications, on a system chip level, is possible since the system memory is totally updated on the chip level. In particular, Mahajan does not disclose or suggest a file management system

that admits access to a file storage region of a flash memory, which stores both a script file and firmware in a non-volatile manner, and is configured to allow a user to handle the script file stored on the flash memory without exposing the firmware stored on the flash memory. Mahajan does not disclose or suggest this feature of claim 10.

In rejecting claim 10, the Office asserted that "column 2 lines 57-62 discloses the system having RAM that holds applications and ROM that holds other programs. It is known in the art that ROM (read only memory) can not be edited." RAM and ROM are a personal computer level hardware architecture that does not correspond to the file management system of claim 10. Mahajan does not disclose or suggest a file management system that admits accessing a file storage region of the flash memory, which stores both the script file and the firmware, by allowing a user to handle the script file without exposing the firmware, as recited in claim 10.

Accordingly, for at least the foregoing reasons, Applicants respectfully submit that Mahajan does not disclose or suggest the file management system as recited in claim 10.

Therefore, Applicants respectfully submit that claim 10 is patentable over Mahajan, since Mahajan does not disclose or suggest all the recited features of claim 10.

III. Rejections Under 35 U.S.C. § 103

Dependent claim 11 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Mahajan in view of Steinberg et al. (U.S. Patent No. 6,628,325, hereinafter "Steinberg"). Dependent claims 13 and 14 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Mahajan and Steinberg, and further in view of Herrero et al. (U.S. Patent Application Publication No. 2004/0133626, hereinafter "Herrero"). Further, dependent claim 16 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Mahajan in view of Kaji (JP 2003-108539).

As demonstrated above, Mahajan does not disclose or suggest the file management system as recited in claim 10. Similarly, Steinberg, Herrero and Kaji also each fail to disclose or suggest the file management system of claim 10.

Consequently, Steinberg, Herrero and Kaji do not cure the deficiencies of Mahajan for failing to disclose or suggest all the recited features of claim 10. Therefore, Applicants respectfully submit that no obvious combination of Mahajan, Steinberg, Herrero and Kaji would result in the subject matter of claim 10, since these references, either individually or in combination, do not disclose or suggest all the recited features of claim 10.

Accordingly, for at least the foregoing reasons, Applicants respectfully submit that claim 10, as well as claims 11-18 which depend therefrom, are patentable over the applied references.

Dependent claims 11-18 recite further distinguishing features over the applied references. The foregoing explanation of the patentability of claim 10 is sufficiently clear such that it is believed to be unnecessary at this time to separately demonstrate the patentability of the dependent claims. Applicants reserve the right to so in the future should it be appropriate. Furthermore, Applicants do not acquiesce to the veracity of any of the Office's assertions not specifically addressed above.

IV. Conclusion

In view of the foregoing amendments and remarks, it is respectfully submitted that the present application is clearly in condition for allowance. Accordingly, a favorable examination and consideration of the instant application are respectfully requested.

If, after reviewing this Amendment, the Examiner believes there are any issues remaining which must be resolved before the application can be passed to issue, the Examiner is respectfully requested to contact the undersigned by telephone in order to resolve such issues.

Respectfully submitted,

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